

ACC NR: AP6027957

Amonolysis of I at  $-40^{\circ}\text{C}$  yields VII (mp  $113-114^{\circ}\text{C}$ ):  
Amonolysis of VIII in dry ether yielded IX (mp  $139^{\circ}\text{C}$ ).

[WA-50; CBE No. 11]

SUB CODE: 07/ SUBM DATE: 23Dec65/ ORIG REF: 007

Card 2/2

ACC NR. AI7000727

SOURCE CODE: UR/0062/66/000/006/1038/1047

KHUNYANTS, I. L., CHEBURKOV, Yu. A., ARONOV, Yu. Ye., Institute of Hetero-organic Compounds, Academy of Sciences USSR (Institut elementoorganicheskikh soyedineniy AN SSSR)

"Reaction of Chlorides of Carboxylic Acids with Dimethylformamide" 1

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 6, 1966, pp 1038-1047

Abstract: A new trend of the reaction of halides of carboxylic acids with dimethylformamide, leading to aldehydes of these acids, was demonstrated. Depending upon the structure of the acids, either transamidation or aldehyde formation occurs. In the reaction of acetyl, trifluoroacetyl, isobutyryl, n-perfluorobutyryl, and benzoyl chlorides with dimethylformamide, the dimethylamides of the corresponding acids were formed. In the case of n-perfluorobutyryl chloride, together with the basic product, the dimethylamide of perfluorobutyrylformic acid was formed. In the case of hexafluoroisobutyryl chloride, the reaction with dimethylformamide liberated CO<sub>2</sub> and produced an unstable crystalline substance, which readily hydrolyzed to hexafluoroisobutyraldehyde. Derivatives of hexafluoroisobutyryl chloride and trichloroacetyl chloride reacted with dimethylformamide to form not only the aldehydes, but also the corresponding chloroalkanes and carbon monoxide, decarbonylation products of the original acid chlorides. Trichloroacetyl chloride reacted simultaneously according to the three schemes, yielding the dimethylamide of trichloroacetic acid, chloral, and

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UDC: 542.95 + 542.95

0723 1892

ACC NR, AP7000727

carbon tetrachloride. The reactions of perfluoropivalyl chloride and hexafluoropivalyl chloride were also studied. A general scheme of the reaction of acid chlorides with dimethylformamide was proposed. Orig. art. has: 5 formulas and 1 table. /JPRS: 37,023/

TOPIC TAGS: carboxylic acid chloride, aldehyde

SUB CODE: 07 / SUBM DATE: 07Dec65 / ORIG REF: 010 / OTH REF: 010

Cord 2/2

ACC NR: AP6032901

SOURCE CODE: UI/0062/66/000/009/1571/1575

AUTHOR: Kranyants, I. L.; Bykhovskaya, E. G.

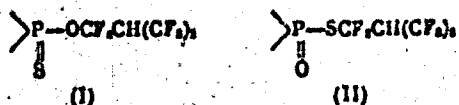
ORG: none

TITLE: Reactions of fluoreolins. Report No. 18. Addition of thiophosphoric acids to  $\alpha$ -olofins

SOURCE: AN SSSR. Izvestiya. Seriya khimicheskaya, no. 9, 1966, 1571-1575

TOPIC TAGS: olofin, phosphonate, phosphoric acid, isobutylene

ABSTRACT: It is shown that  $\alpha$ -isobutylene and  $\alpha$ -cyclobutene readily react with salts of acid esters of methylphosphonic, methylthiophosphonic and diisopropylthiophosphoric acid. The compounds obtained have structure (I) or (II):

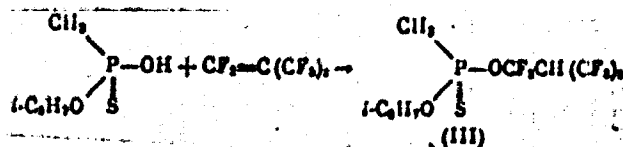


O-Isopropyl-O-2-monohydro- $\alpha$ -isobutylthiophosphonate (III) was formed as follows:

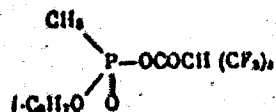
Card 1/3

UDC: 542.91+547.321+661.718.1

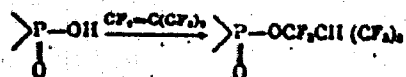
ACC NR: AP6032901



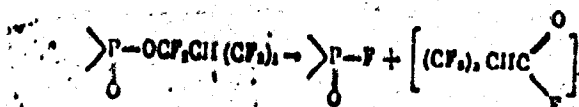
If  $\varphi$ -isobutylene is reacted with isopropyl methylthiophosphonate in acetic acid in the presence of potassium acetate, either



or the fluoride of isopropyl methylphosphonate is formed. Isopropyl methylphosphonate adds to  $\varphi$ -isobutylene



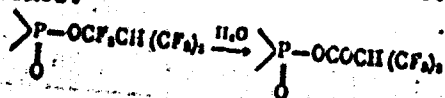
but the product could not be isolated because it converted into the fluoride of isopropyl methylphosphonate



Cord 2/3

10052701

If potassium acetate is removed by first washing the reaction mixture with water, mixed anhydride (III) is formed:



SUB CODE: 07/ SUBM DATE: 10Apr64/ ORIG REF: 001/ CTH REF: 002

Card 3/3

ACC NR: AP6032902

SOURCE CODE: UR/0062/66/000/009/1575/1581

AUTHOR: Podol'skiy, A. V.; German, L. S.; Knunyants, I. L.

ORG: Institute of Organometallic Compounds, Academy of Sciences, SSSR (Institut elementoorganicheskikh soyedineniy Akademii nauk SSSR)

TITLE: Reactions in anhydrous hydrogen fluoride. Report No. 5, Fluoroaminomethylation and fluoroacylaminomethylation of haloolefins

SOURCE: AN SSSR. Izvestiya. Seriya khimicheskaya, no. 9, 1966, 1575-1581

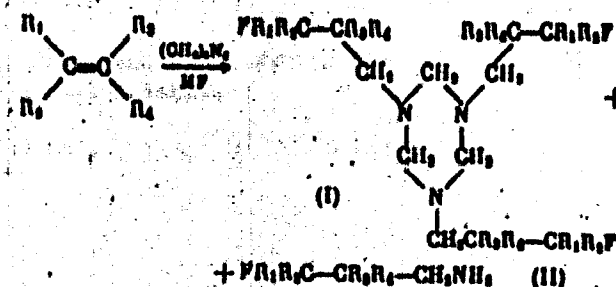
TOPIC TAGS: olefin, hydrogen fluoride, fluorinated organic compound

ABSTRACT: Experiments have shown that urotropin in the presence of HF readily condenses with vinylidene chloride, vinylidene fluoride and trifluoroethylene under very mild conditions (5-20°, atmospheric pressure). With tetrafluoroethylene, the reaction can take place at 50° only under pressure. The main reaction products are the corresponding symmetrical N-fluoroalkyl-substituted hexahydrotriazines (Ia-d) and propylamines (IIa-d).

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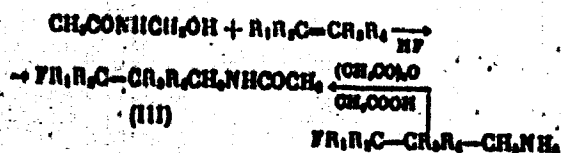
UDC: 542.91+547.233+661.723-16

ACC NR: AP6032902



- a)  $R_1 = R_2 = Cl; R_3 = R_4 = H$  c)  $R_1 = R_2 = R_3 = F; R_4 = H$   
 b)  $R_1 = R_2 = F; R_3 = R_4 = H$  d)  $R_1 = R_2 = R_3 = R_4 = F$

It was also found that methylolacetamide in HF reacts with the above halocoolafins at room temperature (tetrafluoroethylene requires heating) to yield acetyl derivatives of the corresponding propylamines (IIIa-d). The same products were obtained by reverse synthesis



- a)  $R_1 = R_2 = Cl; R_3 = R_4 = H$  c)  $R_1 = R_2 = R_3 = F; R_4 = H$   
 b)  $R_1 = R_2 = F; R_3 = R_4 = H$  d)  $R_1 = R_2 = R_3 = R_4 = F$

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Card 2/3



ACC NR: AP6032590

SOURCE CODE: UR/0062/66/000/008/1377/1382

AUTHOR: Knunyants, I. L.; Dyatkin, B. L.; Gevorkyan, A. A.

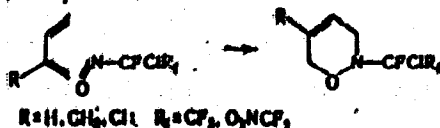
ORG: Institute of Organometallic Compounds, Academy of Sciences, SSSR. (Institut elementoorganicheskikh soyedineniy Akademii nauk SSSR)

TITLE: Reactions of  $\alpha$ -chloroperfluoronitrosoalkanes with unsaturated compounds

SOURCE: AN SSSR. Izvestiya. Seriya khimicheskaya, no. 8, 1966, 1377-1382

TOPIC TAGS: organic nitroso compound, fluorinated organic compound

ABSTRACT: The reactions of diene hydrocarbons and olefins (isobutylene and propylene) with two  $\alpha$ -chloroperfluoronitrosoalkanes,  $\alpha$ -chloroperfluoronitrosoethane  $\text{CF}_3\text{CFClNO}$  (I) and  $\alpha$ -chloro- $\beta$ -nitroperfluoronitrosoethane  $\text{O}_2\text{NCF}_2\text{CFClNO}$  (II), are described. (I) and (II) reacted very readily in ether solution at  $-20$  to  $-15^\circ\text{C}$  with butadiene, isoprene and chloroprene. The main direction of the reaction is a diene-synthesis-type addition forming derivatives of 3,6-dihydro-1,2-oxazines:



$\text{R} = \text{H}, \text{CH}_3, \text{Cl}; \text{R}_2 = \text{CF}_3, \text{O}_2\text{NCF}_2$

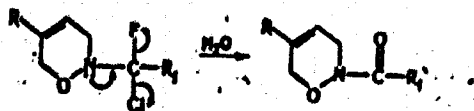
These compounds are unstable and darken rapidly at room temperature. They readily

Card 1/3

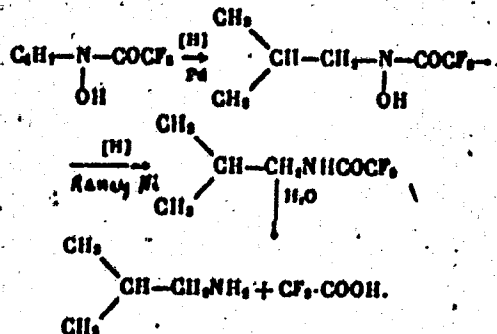
UDC: 542.91+547.231+661.723-16

ACC NR. AP6032590

hydrolyze to the corresponding stable perfluoroacyl derivatives



(I) and (II) also react very readily with isobutylene and propylene. Alkenyltrifluoroacetoxyhydroxamic acid obtained from (I) and isobutylene was made to undergo the following reactions:



It is shown that the reactions of  $\alpha$ -chloroperfluoronitrosoalkanes with isobutylene and propylene lead to the corresponding oxazethidines, whose hydrolysis yields N-(methal-

Card 2/3

ACC NR: AP6032590

lyl)perfluorohydroxamic acid and N-(allyl)perfluorohydroxamic acid      Orig. art. has: 2  
figures.

SUB CODE: 07/    SUBM DATE: 11Mar64/    ORIG REF: 007/    OTH REF: 006

Card 3/3

ACC NR: AP6025587 SOURCE CODE: UR/0413/66/000/013/0020/0020

INVENTOR: Knunyants, I. L.; Bykhovskaya, E. G.; Frosin, V. N.; Sizov, Yu. A.

ORG: none

TITLE: Method of preparation of 2-(N-alkoxy-N-alkyl)aminoethyl mercaptans. Class 12, No. 183204. [announced by Military Academy for Chemical Protection (Voyennaya akademiya khimicheskoy zashchity)]

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 13, 1966, 20

TOPIC TAGS: alkoxyalkylaminoethyl mercaptan, ethylene sulfide, dialkylhydroxylamine, *mercaptan, sulfide, hydroxylamine*

ABSTRACT:

In the proposed method, 2-(N-alkoxy-N-alkyl)aminoethyl mercaptans are obtained by the reaction of ethylene sulfide with N,O-dialkylhydroxylamine at 90—100°C in an organic solvent. [W.A. 50; CBE No. 10]

SUB CODE: 07/ SUBM DATE: 20Sep63/

Card 1/1

UDC: 547.269.1'233.07

ACC NR: AP6031648

SOURCE CODE: UR/0020/66/170/001/0096/0098

AUTHOR: Lin'kova, M. G.; Orlov, A. M.; Knunyants, I. L. (Academician)

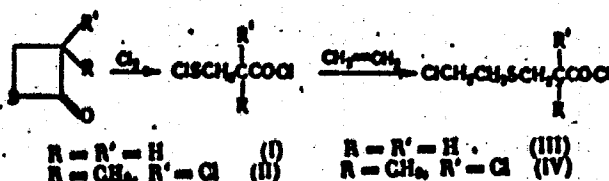
ORG: Institute of Organometallic Compounds, Academy of Sciences, SSSR (Institut elementoorganicheskikh soyedineniy Akademii nauk SSSR)

TITLE: New reaction of  $\beta$ -propiethiolactones

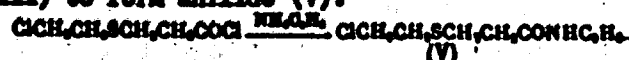
SOURCE: AN SSSR. Doklady, v. 170, no. 1, 1966, 96-98

TOPIC TAGS: lactone, organic sulfur compound

ABSTRACT: It was found that  $\beta$ -propiethiolactones are readily cleaved by chlorine to yield chlorides of the corresponding chlorosulfonylpropionic acids. The following reactions were carried out:



Aniline reacts with (III) to form anilide (V):

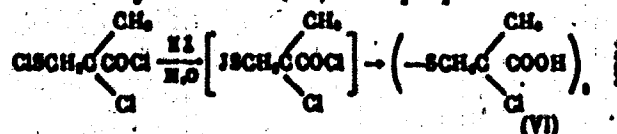


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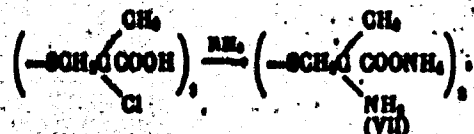
UDC: 542.91+547-314

ACC NR. AP6031648

2,2'-Dichloro-3,3'-dithiodiisobutyric acid (VI) was prepared as follows:



In liquid ammonia, (VI) readily exchanges a chlorine atom for an amine group to form α,α'-dimethylcystine (VII):



In many cases, this method may be the simplest in preparing cystine homologs.

SL3 CODE: 07/ SUBM DATE: 05Feb66/ ORIG REF: 001/ OTH REF: .007

Card 2/2

L 05126-62 EWT(m)/EWP(j) RM  
ACC NR: AP/000723 SOURCE CODE: UR/0062/66/000/005/1017/1022

KNUNYANTS, I. L., SOKOL'SKIY, G. A., and BELAVENTSEV, M. A. 27  
B

"Fluorine-Containing Beta-Sultones. Communication 15. Alkyl Fluorosulfates"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 6, 1966, pp 1017-1022

Abstract: Tetrafluoroethane-beta-sultone reacts with methanesulfonyl chloride, alkyl chlorosulfates, and sulfuryl chloride to form trifluorovinyl chlorosulfate and the corresponding fluorosulfonyl compounds. The temperature conditions of the reaction and yield of trifluorovinyl chlorosulfate are determined by the nature of the substituent on the chlorosulfonyl group of the reactant. The most favorable conditions are observed when methanesulfonyl chloride, a compound characterized by high lability of the chlorine atom in the chlorosulfonyl group, is used. With increasing electron-acceptor properties of the substituent ( $\text{CH}_3 < \text{RO} < \text{HO} < \text{Cl}$ ), the mobility of the chlorine in the reagent molecule decreases, and obstacles to the reaction increase. The reaction of fluorine-containing beta-sultones with alkyl chlorosulfates is a general method for producing previously unavailable aliphatic esters of fluorosulfonic acid. The reaction was conducted between tetrafluoroethane-beta-sultone and methyl, ethyl, n-propyl, n-butyl, n-amyl, and n-hexyl chlorosulfates, producing the

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UDC: 542.91 + 546.226

L 05176-67

ACC NR: AF7000723

corresponding alkyl fluorosulfates. The reactions of the latter with water, sodium chloride, and triethylamine were studied. In all cases the alkyl fluorosulfates proved to be very effective alkylating agents. The molecular refraction of the fluorosulfate group  $\text{ROSO}_2\text{F}$  was found to be 11.50. Orig. art. has: 7 formulas and 7 tables. [JPRS: 37,023]

ORG: none

TOPIC TAGS: organic sulfur compound, fluorinated organic compound

SUB CODE: 07 / SUBM DATE: 12 May 65 / ORIG REF: 004 / OTH REF: 001

Card 2/2

vmb



L 05125-62 EWT(m)/EWP(1) RM

ACC NR: AF7000724

SOURCE CODE: UR/0062/66/000/006/1022/1027

KORNYANTS, I. L., SOKOL'SKIY, G. A., and BELAVENISEV, M. A. 22  
B"Fluorine-Containing Beta-Sultones. Communication 16. Trifluorovinyl Esters of Alkylsulfuric Acids"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 6, 1966, pp 1022-1027

Abstract: Previously unknown trifluorovinyl esters of alkylsulfuric acids were produced in the reaction of tetrafluoroethane-beta-sultone with dialkyl sulfates and with dialkyl sulfites. The ability of aliphatic esters of sulfuric acid to react with a tetrafluoroethane-beta-sultone varies depending on the nature of the alkyl radical in the ester group of the sulfite, the reactivity increasing with length of the alkyl radical. In the case of aliphatic esters of sulfurous acid, the reaction with tetrafluoroethane-beta-sultone is very vigorous, requiring cooling to -10 to -30°. This method is recommended as a general preparative method for producing trifluorovinylalkyl sulfates. The molecular refraction of the trifluorovinyl group  $R_{\text{CF}_3\text{CH=CH}}$  was found to be equal to 9.82. Orig. art. has: 4 formulas and 5 tables. [JPRS: 37,023]

ORG: none

TOPIC TAGS: vinyl compound, ester, organic sulfur compound, fluorinated organic compound

SUB CODE: 07 / SUBM DATE: 14May65 / ORIG REF: 005 / OTH REF: 001

Card 1/1

yab

DOC: 242.91 3 516.226 001

0923 1789

L 05174-67 EWT(2)/EWP(1) RM

ACC NR: AP7000725

SOURCE CODE: UR/0052/66/000/006/1027/1031

KNUNYANTS, I. L., BELAVENTSEV, M. A., ROPALO, P. P., SOKOL'SKIY, O. A. 28

"Fluorine-Containing Beta-Sultones. Communication 17. Derivates of Pentafluoropropenylsulfuric Acid"

Moscow, Izvestiia Akademii Nauk SSSR, Seriya Khimicheskaya, No 6, 1966, pp 1027-1031

Abstract: Pentafluoropropenyl chlorosulfate was produced by the reaction of hexafluoropropane-2-beta-sultone with alkanesulfonyl chlorides (methane- and ethanesulfonyl chlorides), with alkyl chlorosulfates (n-amyl and n-hexyl chlorosulfates), and chlorosulfonic acid, as well as by the reaction of hexafluoropropylene with chlorosulfonic acid or with a solution of sulfuric anhydride. The latter reaction includes the intermediate formation and further conversion of hexafluoropropane-2-beta-sultone. The reaction of hexafluoropropane-2-beta-sultone with dialkyl sulfites yields pentafluoropropenylalkyl sulfates. Hydrolysis and alcoholysis of the latter were studied. The physical properties of the derivatives of pentafluoropropenylsulfuric acid obtained were also investigated.

Orig. art. has: 6 formulas and 6 tables. [JPRS: 37,023]

ORG: none

TOPIC TAGS: fluorinated organic compound, organic sulfur compound

SUB CODE: 07 / SUBM DATE: 17Feb66 / ORIG REF: 004

Card 1/1 vmb

UDC: 542.91 + 546.226

0923

1890

05123-67 ENI(m)/ENP(1) WH/EN/EN  
ACC NR: AP7000726

SOURCE CODE: UR/0062/66/000/006/1031/1038

KNUNYANTS, I. L., CHEBURKOV, Yu. A., BARGAMOVA, M. D., FEDIN, E. I., PETROVSKIY, P. V., Institute of Heteroorganic Compounds, Academy of Sciences USSR (Institut elementoorganicheskikh soedineniy AN SSSR)

"Perfluorodimethylketene, Communication 7. Structure of the Dimer"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya (News of the Academy of Sciences USSR, Chemical Series), No 6, 1966, pp 1031-1038

Abstract: Perfluorodimethylketene, in contrast to other known ketenes, forms a linear dimer under the action of triethylamine. The dimer was also produced by two other methods: 1) the reaction of an equimolar mixture of hexafluoroisobutyl chloride and ethylamine; 2) by the action of triethylamine or cesium fluoride on perfluoromethacrylyl fluoride. In the latter case the reaction mixture was treated with methanol, yielding the methanolysis product of the dimer and also the known methyl ester of hexafluoroisobutyric acid and the methyl ester of alpha-trifluoromethyl-beta, beta-difluoro-beta-methoxypropionic acid. The structure of the dimer of perfluorodimethylketene as the bis-fluoride of perfluoro-(alpha, alpha, gamma-trimethylglutaconic) acid was confirmed by its reactions and infrared spectrum. The reaction mechanism proposed for the dimerization includes isomerization of the ketene to the more stable perfluoromethacrylyl fluoride. A new reaction was discovered: linear dimerization of functional derivatives of perfluoromethacrylic and difluoromethylenemalononic acids. Orig. art. has: 1 figure, 9 formulas and 2 tables. [JPRS: 37,023]

TOPIC TAGS: fluorinated organic compound, isomerization  
SUB CODE: 07 / SUBM DATE: 07Dec65 / ORIG REF: 013

QTY REF: 002  
52.91 + 51.45 + 51.16  
0123 1891

SOURCE CODE: UR/0062/66/000/006/1048/1057

CHURBAKOV, Yu. A., BARGANOVA, M. D.; Institute of Hetero-  
Organic Compounds, Academy of Sciences USSR (Institut elementoorganicheskikh  
soedineniy AN SSSR)

"Action of Triethylamine on Hexafluoroisobutyryl Fluoride"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 6, 1966,  
pp 1048-1057

Abstract: Dimerization of hexafluoroisobutyryl fluoride under the action of triethylamine was demonstrated. The molecular complex of hexafluoroisobutyryl fluoride with triethylamine (1:1) is the triethylammonium salt of the enol form of the fluoride, and evidently undergoes a rearrangement to the triethylammonium salt of the hypothetical unsaturated perfluoro-beta-methylallyl alcohol. The latter dimerizes upon further heating, yielding a salt of a bis-perfluorocarbonol, which loses difluorophosgene and is converted to a mixture of triethylamine fluoride and the triethylammonium salt of perfluoro-(4-methyl-1,3-pentadiene-4-carbinol). The properties and reactivity of the dimer and a number of derivatives of alpha, beta-unsaturated gamma-hydroperfluorinated acids obtained from it were investigated. Alkylation of hexafluoroisobutyryl fluoride by allyl bromide and benzyl chloride proceeds readily in the presence of triethylamine; alkylation does not occur with methylene iodide, 1, 2-diiodoethane, or iodo-benzene. Orig. art. has 4 figures and 13 formulas. [JPRS 37,023]

TOPIC TAGS: fluorinated organic compound, triethylamine, alkylation

SUB CODE: 07 / SUBM DATE: 02Feb66 / ORIG REF: 008 / OTH REF: 010

Cord 1/1 vmb.

UDC: 542.951 + 546.16

L 05121-67 ENT(m)/ENP(j) WH/JW/RM  
ACC NR: AP7000729

SOURCE CODE: UR/0062/66/000/006/1057/1062

KNUNYANTS, I. L., KOCHARYAN, S. T., ROKHLIN, Ye. M., Institute of Heteroorganic Compounds, Academy of Sciences USSR (Institut elementoorganicheskikh soyedineniy AN SSSR)

"Mobility of Hydrogen Atoms in Monohydroperfluoroalkanes and Related Compounds. Communication 2. 2-Monohydroperfluoroisobutane in the Michael Reaction"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 6, 1966, pp 1057-1062

Abstract: The synthetic utilization of the proton mobility of hydrogen atoms in monohydroperfluoroalkanes, induced by the electron repelling action of the perfluoroalkyl groups, was demonstrated for the first time. It was found that triethylamine can be used successfully as the catalyst of the Michael reaction in the case of 2-monohydroperfluoroisobutane and related compounds. In the presence of triethylamine, 2-monohydroperfluoroisobutane adds to acrylic systems (acrylonitrile, methyl acrylate, and acrolein), yielding beta-(perfluoro-tert-butyl) propionitrile, the methyl ester of beta-(perfluoro-tert-butyl) propionic acid, and beta-(perfluoro-tert-butyl) propionaldehyde, which may be used as sources for the synthesis of organic compounds containing the perfluoro-tert-butyl group. Esters of alpha-hydrohexafluoroisobutyric acid and trifluoromethylmalonic acid react analogously, to form the corresponding beta-substituted propionitriles. A reaction mechanism including intermediate formation of a carbanion, which reacts with the activated double bond, is proposed.

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UDC: 542.95 + 661.723-16

0423 1895  
L 05171-67

ACC NR: AP7000729

Orig. art. has: 9 formul-1. [JPAS: 37,023]

TOPIC TAGS: fluorinated organic compound, triethylamine

SUB CODE: 07 / SUM DATE: 1 Dec 65 / ORIG REF: 002 / OTH REF: 001

Cord 2/2 vnb

L 05120-62 EWT(m)/EWP(j) WW/JW/RM  
ACC NR: KP7000730

SOURCE CODE: UR/0062/66/000/006/1062/1065

KHUNYANTS, I. L., GERMAN, L. B., ROZHKOV, I. N., Institute of Heteroorganic Compounds, Academy of Sciences USSR (Institut elementoorganicheskikh soedineniy AN SSSR)

"Aliphatic Fluoronitro-Compounds. Communication 5. Proton Magnetic Resonance Spectra and Ionization Constants of Polyfluoronitroalkanes"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya (News of the Academy of Sciences USSR, Chemical Series), No 6, 1966; pp 1062-1065

Abstract: The proton magnetic resonance spectra of 15 different nitroalkanes were studied to evaluate the degree of shielding of the hydrogen atom in the alpha-position to the nitro-group. The introduction of fluorine atoms into the nitroalkane molecule, like that of other electronegative groups, leads to a shift in the signal of the alpha-hydrogen in the proton magnetic resonance spectrum into the region of a weaker field. The change in the chemical shift of the alpha-hydrogen upon the introduction of electronegative substituents into the nitroalkane molecule, with the exception of fluorine atoms, is correlated with the change in the ionization constants of these compounds. The absence of correlation for fluorine substituents is explained by the fact that the proton magnetic resonance spectrum characterizes the influence of substituents in the static state of the molecule, whereas the ionization constant characterizes the state of dynamic equilibrium of the process of acid-base conversion

Card 1/2

UDC: 543.422 + 661.723-16 + 541.67

L 05170-67

ACC NR: AP7000730

of the nitro-compound. The insertion of fluorine atoms in the beta-position to the nitro-group increases the chemical shift of the alpha-hydrogen in the proton magnetic resonance spectrum and simultaneously the ionization constant of the nitro-compound. Insertion of fluorine into the alpha-position increases the chemical shift of the alpha-hydrogen but decreases the ionization constant.

Orig. art. has: 3 formulas and 1 table. [JPRS: 37, 023]

TOPIC TAGS: fluorinated organic compound, organic nitro compound, proton resonance

SUB CODE: 07 / SUBM DATE: 08Aug64 / ORIG REF: 004 / OTI REF: 006

Card 2/2 vab



L 05169-67 EWT(m)/ENP(j)/ENP(t)/ETI IJP(o) JD/WN/JW/RM

ACC NRAP7000731

SOURCE CODE: UR/0062/66/000/006/1065/1069

KNUNYANTS, I. L., GERMAN, L. S., Institute of Heteroorganic Compounds, Academy of Sciences USSR (Institut elementoorganicheskikh soyedineniy AN SSSR)

"Reactions in Anhydrous Hydrogen Fluoride. Communication 1. Conjugated Halogenation of Olefins"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 6, 1966, pp 1065-1069

Abstract: A method was developed for synthesizing fluorochloroalkanes by conjugated chlorination of olefins in anhydrous hydrogen fluoride. In the reaction of ethylene with chlorine in anhydrous hydrogen chloride at -20 to 30°, together with the addition of chlorine at the double bond there is a conjugated "chlorofluorination" of ethylene, forming 1,2-chlorofluoroethane. Chlorination of vinylidene chloride proceeds analogously. In the reaction of olefins with hexachloromelamine and hydrogen fluoride at atmospheric or somewhat higher pressure, chlorofluorination products are formed in yields as high as 60-65%. Conjugated addition of chlorine and fluorine was carried out with ethylene propylene, cyclohexene, vinylidene chloride and fluoride, and methyl acrylate. The beta-chloroethyl cation formed in the chlorination of ethylene can attack benzene electrophilically to yield beta-chloroethylbenzene. No such electrophilic attack occurred in the chlorination of vinylidene chloride in the presence of benzene. Orig. art. has: 6 formulas. (JPRS: 37,023)

TOPIC TAGS: olefin, halogenated organic compound, vinyl compound

SUB CODE: 07 / SUBM DATE: 25Jan65 / ORIG REF: 003 / OTH REF: 007

Card 1/1 ymb

UDC: 542.95 + 661.723-16

Card 1/1 ymb

UDC: 542.95 + 661.723-16

0923 1901

L 05168-67 EWP(1) WW/RY

ACC NR: AP700073

SOURCE CODE: UR/0062/66/000/006/1069/1075

KNUNYANTS, I. I., LINKOVA, M. G., KULESHOVA, N. D., Institute of Heteroorganic Compounds, Academy of Sciences USSR (Institut elementoorganicheskikh soedineniy AN SSSR)

"Structure of Addition Products of Methyl- and Ethylsulfene Chlorides to Derivatives of Acrylic Acid"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 6, 1966, pp. 1069-1075

Abstract: In the addition of alkylsulfene chlorides to acrylic acid derivatives  $\text{CH}_2=\text{CH-R}$  ( $\text{R} = \text{COOH}, \text{COOCH}_3, \text{CN}, \text{CONH}_2$ ) a mixture of isomers  $\text{CH}_2-\text{CH-R}$  (I) and  $\text{CH}_2-\text{CH-R}$  (II) is formed, the ratio of which depends upon the substituent

$\begin{array}{c} \text{Cl} \quad \text{SR} \\ | \quad | \\ \text{SR} \quad \text{Cl} \end{array}$

R. The more electronegative the substituent, the higher the content of beta-chloroisomer in the mixture of addition products of alkylsulfene chlorides to acrylic acid derivatives. A reaction mechanism is proposed, which agrees with the experimental data and accounts to the ratio of the isomers in the mixture of addition products, the ease of isomerization of II and I, and the fact that the reverse isomerization is not observed. Orig. art. has: 12 formulas. [JPRS: 37,023]

TOPIC TAGS: organic sulfur compound, isomerization, acrylic acid

SUB CODE: 07 / SUBM DATE: 27Mar64 / ORIG REF: 001 / OTH REF: 008

Card 1/1 vab. ODC: 542.91 + 541.124 + 661.719

L 06301-67 EWP(1)/EWT(m) RM

ACC NR. AP7600476

SOURCE CODE: UR/0079/66/036/006/1090/1098

NEKOYSHEVA, A. A., KNUNYANTS, I. L.

"Nucleophilic Substitution in the Series of Derivatives of Phosphorus Acids. <sup>28</sup>  
I. Kinetics of the Hydrolysis of Chlorides of Dialkylphosphinic Acids" <sup>13</sup>

Moscow, Zhurnal Obshchey Khimii, Vol 36, No 6, 1966, pp 1090-1098

Abstract: To explain the increase in the reactivity of organophosphorus compounds with decreasing filling of the d-level of the phosphorus atom due to displacement of the p-electrons of the oxygen atom of the alkoxy-group, as well as the influence of other factors, particularly the steric factors, upon the reactivity of organophosphorus compounds, the authors studied the kinetics of the hydrolysis of a number of chlorides of phosphinic acids and chlorophosphonates. It was found that in addition to the inductive influence and effect of conjugation of atoms or groups of atoms bonded to the phosphorus, a great role in the reactivity of halides of phosphorus acids is played by the steric factor. The reactivity of chlorides of dialkylphosphinic acids varies by three orders of magnitude on account of the change in the entropy factor with a negligible change in the activation energy. Additive ratios of the influence of substituents in the series of phosphinoyl chlorides are observed only in those cases when the significance of steric hindrance is small. Investigations of an extensive number of examples indicated that the influence of substituents

Card 1/2

UDC: 546.13 + 543.878

098.2

1187

L 05165-62 DWT (M)/ENP (J) NM/JM/RM  
ACC NR. AP700073

SOURCE CODE: UR/0062/66/000/006/1108/1110

KHUNYANTS, I. L., ZEYTMAN, Yu. V., GAMBARIAN, E. P., Institute of Hetero-organic Compounds, Academy of Sciences USSR (Institut elementoorganicheskikh soedineniy AN SSSR)

"2-Acetoxy-2-acetylaminohexafluoropropane and Its Reactions"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 6, 1966, pp 1108-1110

Abstract: 2-Acetoxy-2-acetylaminohexafluoropropane was produced by reaction of hexafluoroacetoneimine with acetic anhydride in the presence of catalytic amounts of sulfuric acid. It was also produced by acetylation of the geminal hydroxyamide with acetic anhydride. Reactions of 2-acetoxy-2-acetylaminohexafluoropropane were studied: it reacts readily with nucleophilic reagents with a replacement of the acetoxy group. The reaction with acetamide yields 2,2-bis-(acetamido) hexafluoropropane; the reaction with ketene leads to a dihydrooxazone, hydrolysis of which yields beta-acetyl-amino-beta, beta-bis-(trifluoromethyl) propionic acid, and then hexafluoro-beta-valine. Orig. art. has: 5 formulas. [JPAS: 37,023]

TOPIC TAGS: fluorinated organic compound, hydrolysis, acetic anhydride

SUB CODE: 07 / SUBM DATE: 06Dec65 / ORIG REF: 004 / OTH REF: 010

Card 1/1 ynb

UDC: 542.91 + 546.16

0923 1903

L 0516-67 EAT(m)/EWP(j) JN/RM

ACC NR: AP7000738

SOURCE CODE: UR/0062/66/000/006/1124/1124

KHUNYANTS, I. L., DYATKIN, B. L., BROKER, R. A., Institute of Heteroorganic Compounds, Academy of Sciences USSR (Institut elementoorganicheskikh soedineniy AN SSSR)

"New Method of Synthesizing Alpha-Difluoroaminoperfluorocarboxylic Acids and Their Derivatives"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 6, 1966, p 1124

Abstract: A new method of synthesizing alpha-difluoroaminoperfluorocarboxylic acids and their derivatives on the basis of readily available alkylperfluorovinyl ethers and tetrafluorohydrazine was discovered. The alkylperfluorovinyl ether was treated with tetrafluorohydrazine, the adduct then treated with antimony pentafluoride, and the  $\text{ROF}(\text{NF}_2)\text{COF}$  formed quantitatively converted to esters of alphasdifluoroaminoperfluoropropionic acid by treatment with alcohols. Orig. art. has: 2 formulas. [JPRS: 37,023]

TOPIC TAGS: organic synthetic process, fluorocarboxylic acid, ether, vinyl compound hydrazine, nonmetallic organic derivative

SUB CODE: 07 / SUBM DATE: 07Apr66 / OTH REF: 001

Card 7/1 vmb

UDC: 542.91 + 547.466 + 546.16

0923 1987

L 32682-66 EWT(m)/EWP(1) RM/FDM/JW

ACC NR: AP6012527

SOURCE CODE: UR/0062/66/000/003/0466/0472

AUTHOR: Knumyants, I. L.; Yokin, A. V.; Komarov, V. A.

ORG: none

TITLE: Nitration<sup>1</sup> of perfluoropropylene<sup>1</sup> with nitrogen dioxide and investigation of nitration products

SOURCE: AN SSSR. Izvestiya. Seriya khimicheskaya, no. 3, 1966, 466-472

TOPIC TAGS: nitration, organic chemistry, nitrogen oxide, fluorine compound,  
PROPYLENE

ABSTRACT: The present study is a continuation of work reported in Dokl. AN SSSR, III, 1035 (1956). The synthesized nitration products are given in the following table along with some of their properties:

UDC: 542.958.1 + 661.723-16

Cord 1/3

L 32682-66

ACC NR: AF8012527

Formula	Boiling point °C (pres- sure, mm Hg)	$n_D^{20}$	$n_D^{25}$	Formula	Boiling point °C (pres- sure, mm Hg)	$n_D^{20}$	$n_D^{25}$
$CF_3-CF_2-CF_2-$ $ONONO_2$	87	1,837	1,3278	$CF_3-C-CF_2NO_2$ $OH \quad OC_2H_5$	118,5	1,391	1,3520
$CF_3-C-CF_2NO_2$ $OH \quad OH$	119-130	1,838	1,3560	$CF_3-C-CH_2-$ $CF_2NO_2 \quad O-C=O$	68(44)	1,618	1,3621
$CF_3-C-CF_2NO_2$ $O \quad OH$	32-33	1,5350	1,2965	$CHF_2NO_2$ $CF_2-CH-CH_2-$	42-43	1,4605	1,3158
$CF_3-C-CF_2NO_2$ $OH \quad OH$	37	1,809	1,3500	$NO_2 \quad OH$ $CF_2-CH_2-OH$	64-65(25)	1,350	1,3525
$CF_3-C-CF_2NO_2$ $OH \quad OH$	50	1,935	1,3758	$NO_2 \quad CH_3$ $CF_3-C-CH_2-$	65(40)	1,4792	1,3780
$CF_3-C-CF_2NO_2$ $OH \quad OH$	64-65(20)	1,8222	1,3495	$NO_2 \quad OH$	55(35)	1,2950	1,3015

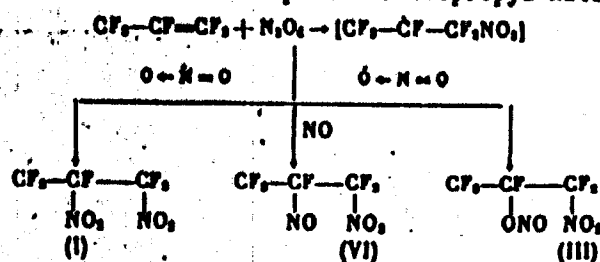
During nitration of perfluoropropylene with nitrogen dioxide, nitroperfluoroisopropyl nitrile and dinitroperfluoropropane form. Hydrolysis of nitroperfluoroisopropyl nitrite produces nitroperfluoroacetone hydrate which upon dehydration produces anhydrous

Card 2/3

L 32682-66

ACC NR: AP6012527

nitroperfluoroacetone. The chemical properties of nitroperfluoroacetone were investigated and some of its derivatives were synthesized. Nitroperfluoroacetone reacts with basic compounds to form difluoronitromethane and trifluoroacetic acid derivatives. The reaction of nitroperfluoroacetone with nitrosyl fluoride produces the same perfluoroisopropyl nitrite as that produced by heating of perfluoropropylene with nitrogen dioxide, which proves the structure of nitroperfluoroisopropyl nitrite according to the reaction



which corresponds to structure III. Orig. art. has: 1 table.

SUB CODE: 07/

SUBM DATE: 21Nov63/

ORIG REF: 005/

OTH REF: 005

Card 3/3

86



L 31885-66 ENT(m)/ENP(j)/T WM/JW/JWD/EM

ACC NR: AP6012539

SOURCE CODE: UR/0062/66/000/003/0585/0585

AUTHOR: Dyatkin, B. L.; Mochalina, Ye. P.; Bekker, R. A.; Knunyants, I. L. 44  
1/3

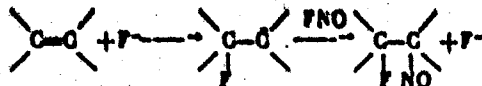
ORG: Institute of Elemental Organic Compounds, Academy of Sciences SSSR (Institut elementarnoorganicheskikh soedineniy Akademii nauk SSSR)

TITLE: Mechanism of addition of nitrosyl fluoride to fluoroolefins 1

SOURCE: AN SSSR. Izvestiya. Seriya khimicheskaya, no. 3, 1966, 585

TOPIC TAGS: organic synthesis, fluorine compound

ABSTRACT: The authors obtained experimental proof of the nucleophilic mechanism of addition of FNO to higher fluoroolefins. It was shown that alkali metal fluorides (especially in strongly ionizing media) are effective catalysts of this reaction



Perfluoroethylene reacts with FNO only at 120-150°C and the reaction of perfluoroethylene (15 g), FNO (5.5 g), CsF (2 g) and KF (4 g) produces 2-nitrosoperfluoropro-

Card 1/2

UDC: 541.124 + 546.16

L 31885-66

ACC NR: AP6012539

pane (14.3 g). Perfluorocyclobutene according to our observations does not react with FNO even during heating to 120°C; however, shaking of 8 g of perfluorocyclobutene, 4.5 g of FNO, 1 g CSF and 2 kg KF with 5 ml of tetramethylene sulfone at 35° for 3 hrs produces nitrosoperfluorocyclobutane with 70% yield.

SUB CODE: 07/ SUBM DATE: 30Dec65/ ORIG REF: 002/ OTH REF: 001

26  
Card 2/2

L 31795-66

RPT(M)/RPT(J) FM

ACC NR: AP6021685

SOURCE CODE: UR/0079/66/036/003/0500/0506

AUTHOR: Keytshova, A. A.; Savchuk, V. I.; Kurnyants, I. L.

ORG: none

TITLE: S-alkylthiophosphonic acids and their derivatives. I. Influence of induction and conjugation on the dissociation constants of the acids

SOURCES: Zhurnal obshchey khimii, v. 36, no. 3, 1966, 500-506

TOPIC TAGS: phosphonic acid, nonmetallic organic derivative, conjugate bond system, dissociation constant, substituent, organic sulfur compound, chlorinated organic compound

ABSTRACT: A series of thioesters of alkylthiophosphonic and arylthiophosphonic acids were produced for the first time by the action of water on benzene solutions of the corresponding thiochlorophosphates. Acid thioesters of alkyl- and arylthiophosphonic acids are thermally unstable compounds, in contrast to their oxygen analogs; S-alkylalkyl- and S-alkylarylthiophosphonic acids are stronger acids than their oxygen analogs. The dissociation constants of the acids were determined and were found to depend not only on the inductive influence of substituents, but also on the ability of the atoms or groups of atoms bonded to the phosphorus to participate in conjugation with the vacant 3d-level of the phosphorus atom. The influences of induction and conjugation upon the dissociation constants of the acids are discussed. Orig. art. has: 6 tables. [JPRS]

SUB CODE: 07 / SUBM DATE: 19Apr65 / ORIG REF: 005 / OTH REF: 007

Card 1/1

UDC: 547.419.1+543.257.1

L 20635-66 ENP(j)/ENT(m) RM/WW

ACC NR: AP6011196 SOURCE CODE: UR/0413/66/000/006/0027/0027

INVENTOR: Knunyants, I. L.; Gambaryan, N. P.; Livshits, B. R.; Simonyan, L. A.

ORG: none

TITLE: Preparative method for diphenylbis(trifluoromethyl)methane-4,4'-dicarboxylic acid. Class 12, No. 179764

SOURCE: Izobreteniya, promyshlennyye obratzy, tovarnyye znaki, no. 6, 1966, 27

TOPIC TAGS: fluorinated organic compound, Carboxylic acid

ABSTRACT: An Author Certificate has been issued for a preparative method for diphenylbis(trifluoromethyl)methane-4,4'-dicarboxylic acid. The method involves the reaction of hexafluoroacetone with toluene in the presence of anhydrous hydrogen fluoride, and subsequent oxidation of the reaction product with dilute nitric acid. [SM]

SUB CODE: 07/ SUBM DATE: 04Nov63/ ATD PRESS: 4225

Card 1/1 UDC: 547.539.16'584.05

L 17611-66 EWT(m)/EWP(j) WW/JV/RM  
ACC NR: AP600209

SOURCE CODE: UR/0062/65/000/011/1982/1987

AUTHORS: Mukhamadaliyev, M.; Chaburkov, Yu. A.; Knyants, I. L. 47

ORG: Institute for Heteroorganic Compounds, Academy of Sciences, SSSR (Institut elementoorganicheskikh soedineniy Akademii nauk SSSR)

TITLE: Perfluorodimethylketene, <sup>44,52</sup> Communication 6. Interaction with nitrous acid derivatives

SOURCE: AN SSSR. Izvestiya. Seriya khimicheskaya, no. 11, 1965, 1982-1987

TOPIC TAGS: fluoride, fluorinated hydrocarbon, fluorinated organic compound, fluorine compound, organic nitrile compound, chemical reaction

ABSTRACT: The properties of the fluoroanhydride and ethyl ester of  $\alpha$ -nitrosohexafluorobutyric acid were studied to extend the work of the authors (Dokl. AN SSSR 165, 1 (1966)). The latter compounds were obtained by reacting perfluorodimethylketene with nitrosyl fluoride and ethylnitride. In addition, the reaction of perfluorodimethylketene with sodium nitrite and nitrogen trioxide, yielding an oxime of hexafluoroacetone, was also studied. A reaction mechanism for each of the reactions is proposed, and the yield and melting point of each product are recorded.

Card 1/2

UDC: 542.91+546.16

L 17611-66

ACC NR: AP6002099

The attempt to extend the reaction to nitric acid derivatives proved unsuccessful. Thus no reaction occurred between nitric acid anhydride, ethyl nitrate, and perfluorodimethylketene. Orig. a.r.t. has: 11 equations.

SUB CODE: 07/ SUBM DATE: 04Jun/5/ ORIG REF: 010/ OTH REF: 003

Card 2/2 vnb

L 18444-66 EIT(m)/EIP(j) RM  
 AGO NR: AP6002508 (A) SOURCE CODE: UR/0286/6:/000/023/0017/0017  
 AUTHORS: Knunyants, I. L.; Sokol'skiy, G. A. 18  
 ORG: none B  
 TITLE: Method for obtaining dialkylsulfates. Class 12, No. 1:6579<sup>15</sup> [announced by  
 Military Academy of Chemical Defense (Voennoy akademiya khimicheskoy zashchity)]  
 SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 23, 1965, 17  
 TOPIC TAGS: organic sulfur compound<sup>4/16</sup>, sulfate, alkylation  
 ABSTRACT: This Author Certificate presents a method for obtaining dialkylsulfates  
 by treating sulfuryl chloride with an alkylating agent. To increase the yield of  
 the desired product, alcohol sulfites are used as the alkylating agent.  
 SUB CODE: 07/ SUBM DATE: 24 Dec 64

Card 1/1

UIC: 547.26:122.07 2

GEVORKYAN, A.A.; DYATKIN, B.L.; KNURYANTS, I.L.

Certain reactions of tert-nitrosoperfluoroisobutane. Zhur. VKH  
10 no. 6:707-708 '65 (MIRA 19:1)

1. Institut elementoorganicheskikh soedineniy AN SSSR. Submitted July 22, 1965.



DIATKIN, B.L.; BEKKER, R.A.; KHUNYANTS, I.L., akademik

Reaction of alkylperfluorovinyl ethers with nitrogen dioxide.  
Esters of nitrosofluorocarboxylic acids. Dokl. AN SSSR 166  
no.1:106-109 Ja '66. (MIRA 19:1)

1. Institut elementoorganicheskikh soedineniy AN SSSR. Submitted July 9, 1965.

KNUNYANTS, I.L.; DYATKIN, B.L.; MOCHALINA, Ye.P.; LANTSEVA, L.T.

Hexafluoroisopropylhydroxylamine and the dissociation constants  
of some fluorinated hydroxylamines and oximes. Izv. AN SSSR. Ser.  
khim. no.1:179-180 '66. (DRA 19:1)

1, Institut elementoorganicheskikh soedineniy AN SSSR, Submitted  
May 26, 1965.

KNUNYANTS, I.L., akademik; KOCHARYAN, S.T.; CHEBURKOV, Yu.A.; BARGAMOVA, M.D.;  
ROKHLIN, Ye.M.

Reversibel dehydrofluorination of 2-monohydroperfluoroisobutane  
and  $\gamma$ -hydrohexafluoroisobutyric acid esters. Dokl. AN SSSR 165  
no. 4: 827-830 D '65. (MIRA 18:12)

1. Institut elementoorganicheskikh soedineniy AN SSSR.

GERMAN, L.S.; KIRUNYANTS, I.L., akademik

Hypofluorination reaction. Dokl. AN SSSR 166 no.3:602-603  
Ja '66. (MIRA 19:1)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.  
Submitted July 21, 1965.

DIATKIN, B.L.; MOCHALINA, Ye.P.; LANTSEVA, L.T.; KNUNYANTS, I.I.

Hexafluoroisobutyric acid in the Borodin-Hunsdiecker reaction.  
Zhur.VKHO 10 no.4:469-470 '65.

(MIRA 18:11)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.

KNUNYANTS, I.L.; PROBIN, V.M.; BYKHOVSKAYA, E.O.

Interaction of fluorocolefins with N,N-diethylhydroxylamine.  
Zhur.VKHO 10 no.4:470-471 '65.

(MIRA 18:11)

KNUNYANTS, I.L.; BYKHOVSKAYA, E.O.; DYATKIN, B.L.; PROSIN, V.N.;  
GEVORKYAN, A.A.

Interaction of trifluoronitroisomethane and tert-perfluoro-  
nitroisobutane with acid phosphites. Zhur.VKHO 10 no.4:472-  
473 '65. (MIRA 18:11)

GERMAN, L.S.; ROZHKOV, I.N.; KHURKANTSE, I.L.

Nitrofluorination of ethylene and monofluoroacetic acid.  
Zhur.VKHC-10 no.5:599-600 '65.

(MIRA 18:11)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.



MUKHAMADALIYEV, N.; CHEBURKOV, Yu.A.; KMUNYANTS, I.L.

Perfluorodimethylketene. Report No.6: Reaction with derivatives of nitrous acid. Izv. AN SSSR. Ser. khim. no.11:1982-1987 165. (MIRA 18:11)

1. Institut elementorganicheskikh soedineniy AN SSSR.

KEYMAN, Yu.W.; GAMBARYAN, N.P.; KNUNYANTS, I.L.

Hexafluoroacetone N-benzoyl amine. Izv. AN SSSR, Ser. khim.  
no.11:2046-2048 '65. (MIRA 18:11)

1. Institut elementoorganicheskikh soedineniy AN SSSR.

L 7893-66 EWT(m)/EPT(o)/EWP(j)/EWA(o) RPL NW/RM

ACC NR: AP5024965

SOURCE CODE: UR/0286/65/000/016/0027/0027

AUTHORS: Knunyants, I. L., Sokol'skiy, G. S., Belaventsev, M. A.

ORG: none

TITLE: Method for obtaining octafluorocyclobutane. Class 12, No. 173733  
/announced by Military Academy of Chemical Defense, (Voyennaya akademiya  
khimicheskoy shashchity)/

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 16, 1965, 27

TOPIC TAGS: *fluorinated organic compound, tetrafluoroethylene, cyclic group, butane, organic synthesis process*

ABSTRACT: This Author Certificate presents a method for obtaining octafluorocyclobutane by heating the tetrafluoroethylene in an autoclave in the presence of polymerisation inhibitors and by subsequent separation of the product by fractionation. To increase the yield of product, carbon dioxide or methylsulfite are used as polymerisation inhibitors, and the reaction is carried out at 150-170C.

SUB CODE: 07/  
RW

SUBM DATE: 15Dec64

Card 1/1

UDC: 547.513.07

L 9786-66 EWT(1)/EWA(1)/ENT(m)/ENP(1)/ENP(t)/EWA(b)-2/ENP(b)/EWA(e) IJP(c)/RPL

ACC NR: AP5028457 JD/WN/JN/RO/RM SOURCE CODE: UR/0286/65/000/020/0021/0021

AUTHORS: <sup>44.55</sup>Knunyants, I. L.; <sup>44.5</sup>Sokol'skiy, G. A.; <sup>44.5</sup>Belaventsev, M. A. <sup>53</sup>  
<sup>23</sup>  
<sup>7/4/55</sup>

ORG: none

TITLE: Method for obtaining sultones of  $\beta$ -oxypolyfluoroalkanesulfonic acids, <sup>6</sup>  
Class 12, No. 175501, (announced by Military Academy of Chemical Defense (Voyennaya  
akademiya khimicheskoy zashchity) <sup>44.55</sup>

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 20, 1965, 21

TOPIC TAGS: sulfonate, sulfur compound, olefin, fluorine compound

ABSTRACT: This Author Certificate presents a method for obtaining sultones of  $\beta$ -oxypolyfluoroalkanesulfonic acids by heating a mixture of fluorolefin with sulfur trioxide at 50-60C. To simplify the process, the gaseous mixture of fluorolefin and sulfur trioxide is passed through a rectifying column. The product is separated by distillation in a current of fluorolefin and purified by crystallization.

SUB CODE: 11/ <sup>07</sup> SUBM DATE: 15Dec64

PC

Card 1/1

UDC: 547.431.6'221.07

KNUNYANTS, I.L. (Moskva); SOKOL'SKIY, G.A. (Moskva); BELAVENTSEV, M.A. (Moskva)

Ionotropic conversions of  $\beta$ -sultones. Teoret. i eksper. khim.  
1 no.3:324-342 My-Je '65. (MIRA 18:9)

ZEYFMAN, Yu.V.; GAMBARYAN, N.P.; KNUNYANTS, I.L.

Reaction of hexafluoroacetone imine with butadiene and isobutylene.  
Izv. AN SSSR, Ser. khim. no.8:1472-1474 '65. (MIRA 18:9)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.

CHEBURKOV, Yu.A.; MUKHAMADALIYEV, N.; KNUNYANTS, I.L.

Reaction of hexafluoroisobutyl fluoride with acid chlorides.  
Izv. AN SSSR. Ser. khim. no.8:1476-1478 '65. (MIRA 18:9)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.

CHEBURKOV, Yu.A.; MUKHAMADALIYEV, N.; ARONOV, Yu.Ye.; KNUNYANTS, I.L.

Reaction of perfluorodimethylketene with dimethylformamide.  
Izv. AN SSSR. Ser. khim. no.8:1478-1480 '65. (MIRA 18:9)

1. Institut elementoorganicheskikh soedineniy AN SSSR.



GEVORKYAN, A.A.; DYATKIN, B.L.; KNUNYANTS, I.L.

Action of phosphorous acid esters on  $\alpha$ -chloroperfluoronitroso  
alkanes. Izv. AN SSSR. Ser. khim. no.9:1599-1606 '65.

(MIRA 18:9)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.

BELAVENTSEV, M.A.; SOKOL'SKIY, G.A.; KNUNYANTS, I.L.

Fluorine-containing  $\beta$ -sulfoxones. Report 12: Sulfofluoride-  
difluoroacetyl fluoride. Izv. AN SSSR. Ser. khim. no.9:  
1613-1616 '65. (MIRA 18:9)

DYATKIN, B.L.; MOCHALINA, Ye.P.; KNUNYANTS, I.L.

Oxidation of hexafluoroacetone oxime in anhydrous hydrogen fluoride. Izv. AN SSSR. Ser. khim. no.9:1715-1716 '65.

(MIRA 18:9)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.

KNUNYANTS, I.L.; TYULEMEVA, V.V.; PERVOVA, Ye.Ya.; STERLIN, R.N.

Pseudophosphonium compounds from triethyl phosphite and  
perfluoro-olefins. Izv. AN SSSR. Ser. khim. no.10:1797-  
1801 O '64. (MIRA 17:12)

1. Institut elementoorganicheskikh soedineniy AN SSSR.

SOKOL'SKIY, G.A.; BELAVENTSEV, M.A.; KNUNYANTS, I.I.

Fluorine-containing ~~/~~-sulfones. Reports No.14: Trifluorovinyl  
chlorosulfate. Izv. AN SSSR.Ser.khim. no.10:1804-1808 '65.  
(MIRA 18:10)

KNUNYANTS, I.I.; GOLUBEVA, N.Ye.; DEL'TSOVA, D.P.

Peptides containing N-dichloroacetyl-DL-serine. Izv. AN SSSR. Ser.  
khim. no.10:1872 '65. (MIRA 18:10)

1. Institut elementoorganicheskikh soedineniy AN SSSR.

DIATKIN, B.L.; GEV RKYAN, A.A.; KNUNYANTS, I.L.

Substitution of nitroso group in perfluoronitroso alkanes.  
Inv. AN S SR.Ser.khim. no.10:1873-1875 '65.

(MIRA 18:10)

1. Institut elementoorganicheskikh soedineniy AN USSR.

ZURABYAN, S.E.; RASTYKENE, L.P.; KIL'DISHEVA, O.V.; KNUNYANTS, I.L.

N $\alpha$ -acyl derivatives of arginine containing  $\alpha$ , $\beta$ -di(2-chloroethyl)  
amino group. Izv. AN SSSR. Ser. khim. no.10:1899-1901 O '64.  
(MIRA 17:12)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.



CHEBURNOV, Yu.A.; MUKHAMADULYEV, N.; EDENYANIN, I.I., et al.

$\alpha$ -Nitrohexafluoroisobutyric acid. Dokl. AN SSSR 165 no. 2:127-129  
N 165. (MIRA 18:10)

1. Institut elementoorganicheskikh soedineniy AN SSSR.

KNUNYANTS, I.L., glav. red.; BAKHAROVSKIY, R.Ya., zam. glav. red.;  
VASKEVICH, D.N., nauchn. red.; VONSKIY, Ye.V., nauchn.  
red.; GALLE, R.R., nauchn. red.; OODIN, Z.I., nauchn. red.  
MOSTOVENKO, N.P., nauchn. red.; TRUKHANOVA, M.Ye., red.

[Concise chemical encyclopedia] Kratkaia khimicheskaiia  
ei siklopediia. Moskva, Sovetskaiia Entsiklopediia.  
Vol.4. 1965. 1182 columns. (MIRA 18:7)

L 44365-66 EWT(m)/ENP(j) WH/JW/RM

ACC NR: AP6019737

SOURCE CODE: UR/0063/66/011/003/0356/0358

AUTHOR: German, L. S.; Knunyants, I. L.

ORG: Institute of Organoelemental Compounds, Academy of Sciences SSSR (Institut elementoorganicheskikh soyedineniy akademii nauk SSSR)

TITLE: Reactions in anhydrous hydrogen fluoride. Synthesis of fluorine containing simple and complex esters

SOURCE: Vses khim obshch. Zh, v. 11, no. 3, 1966, 356-358

TOPIC TAGS: ester, esterification, compound, chlorinated organic compound

fluorinated organic

ABSTRACT: Several simple fluorine-containing esters were synthesized from 1,1-difluoro-ethylene alcohol and formaldehyde in HF-solvent. The complex esters were synthesized from 1,1-difluoroethylene (or 1,1-dichloroethylene), acetic acid and formaldehyde in HF-solvent. Boiling points, refractive indices, densities, yields, data on elementary analyses, and NMR spectral data for the product esters, are presented in tabular form. In a typical synthesis example, 0.2-0.3 mol of alcohol (or acetic acid) were added within 1-1.5 hours to a 15% solution of paraformaldehyde in HF at 0 to -5°C. After 2-3 hr, the excess of HF was driven off by evaporation and the reaction mixture was separated from ice, neutralized with ammonium carbonate and extracted with diethyl ether or distilled off. Orig. art. has: 1 table, 3 formulas.

SUB CODE: 07/

SUBM DATE: 24Dec65/

ORIG REF: 002/

OTH REF: 001

UDC: 547.221/547.29

Card 1/1 hs.

ZAVIDOV, V.I.; ZMIYEVSKIY, P.K.; FEDOROVA, Z.V.; KNUR, L.I.; ATAMANKIN, A.I.

Obtaining extracts to be used as raw materials in the production of carbon black. Nefteper. i neftekhim. no. 6:24-26'63  
(MIRA 17:7)

1. Volgogradskiy nauchno-issledovatel'skiy institut neftyanoy i gazovoy promyshlennosti i Volgogradskiy netrepererabatyayushchiy zavod.

ACC NR: AP6035835

SOURCE CODE: UR/0413/66/000/020/0038/0038

INVENTOR: Knunyants, I. I.; Bykhovskaya, E. G.; Frosin, V. N.; Sizov, Yu. A.

ORG: none

TITLE: Preparation of fluorine-containing isoxazolidines. Class 12, No. 187026 [announced by Military Academy for Chemical Protection (Voyennaya akademiya khimicheskoy zashchity)]

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 20, 1966, 38

TOPIC TAGS: fluoroisoxazolidine, nitron, olefine, potassium fluoride, *fluorinated organic compound, potassium compound, fluoride*

ABSTRACT: In the proposed method, fluorine-containing isoxazolidines are obtained by treating nitrones with  $C_1-C_3$   $\phi$ -olefins in an organic solvent, e.g., benzene, in the presence of potassium fluoride in an autoclave at  $\sim 20^\circ C$ .

[WA-50; CBE No. 14]  
[PS]

SUB CODE: 07/ SUBM DATE: 20Sep65

Card 1/1

UDC: 547.786:221.07

Card 1/1

IMP: 517 288 11 07

ACC NR: AP0625994

SOURCE CODE: UR/0079/66/036/007/1326/1330

AUTHOR: Dyatkin, B. L.; Gevorkyan, A. A.; Knunyants, I. L.

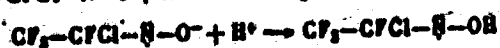
ORG: none

TITLE: Derivatives of trifluoroacetoxyhydroxamic acid

SOURCE: Zhurnal obshchey khimii, v. 36. no. 7, 1966, 1326-1330

TOPIC TAGS: trifluoroacetoxyhydroxamic acid derivative, chlorination, bromination, FLUORINE COMPOUND, ACETAL, ORGANIC NITROSO COMPOUND, HALIDE, AMIDE

ABSTRACT: Hydrogenation of  $CF_3CF_2NO_2$  over palladium black in absolute ether at an initial pressure of 120 atm gave  $CF_3CF_2NOH$  (bp  $30-31^\circ C$ ,  $n_D^{20}$  1.3230,  $d_4^{20}$  1.1520), which was chlorinated at  $-40^\circ C$  in tetrachloroethane in the presence of pyridine to form (92%)  $CF_3CF_2ClN:O$ . The latter was mixed with phenol and ethyl ether at  $-78^\circ C$  and then brominated with HBr at  $-30^\circ C$  to form  $CF_3CF_2NOH$ , which was identified as  $CF_3CF_2NOH \cdot 0.5(C_2H_5)_2O$  (bp  $78-80^\circ C$ ,  $n_D^{20}$  1.3245,  $d_4^{20}$  1.1200):



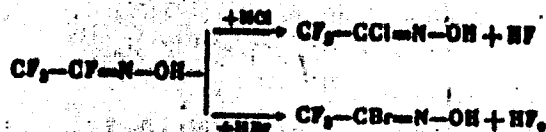
Card 1/3

UDC: 547.413.5

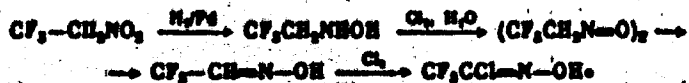
ACC NR:AP6025994



In this reaction, F may be substituted either by Cl (which is formed during the reaction) or by Br, when the reaction is conducted with an excess of HBr, to form  $CF_3CCl:NON \cdot 0.5(C_2H_5)_2O$  (bp  $48^\circ C$ ,  $n_D^{20}$  1.3610,  $d_4^{20}$  1.2440) and  $CF_3CBr:NON \cdot 0.5(C_2H_5)_2O$  (bp  $60-61^\circ C$ ,  $n_D^{20}$  1.3870,  $d_4^{20}$  1.5170):



Chlorination of an aqueous solution of  $CF_3CH_2NOH$  yielded a blue nitroso compound which dimerized to  $(CF_3CH_2NO)_2$ , mp  $82.5-83.5^\circ C$ ; this when chlorinated at  $-20^\circ C$  in  $HCl$  yielded (53%)  $CF_3CCl:NON$ , bp  $98-102^\circ C$ ,  $n_D^{20}$  1.3610.



Card 2/3

VALEK, Dusan; KLIMA, Jaroslav; KNUROWSKI, Tomas, ins.

No-cut gallery driving. Rudy 13 no.2:57-66 F '65.

1. Zelezorudne doly a hrdkovny National Enterprise, Fjovice-Nuvice (for Valek).
2. Central Administration of the Research and Mining of Radioactive Raw Materials, Pribram (for Klima).
3. Institute of Ore Research , Prague (for Knurovski).



KNUROWSKI, Tomas, ins.; VALEK, Dusan

Warrant driving in quarantines. Rudy 11 no. 4:103-109 Ap '63.

1. Zelenne doly a hrudkovny, Munice.

VALEK, Dusan; KNUROWSKI, Tomas, ins.

Use of driving by parallel boreholes in the ore mines of  
Nucice. Rudy 10 no.7:225-227 J1 '62.

1. Zelezna doly a hrdkovny Ejpovice - Nucice.

KNUTOV, O. D.

"Investigation of the Optimum Zone of Separation of the Chamber  
Mixture for Obtaining Alcohol in the Process of Bread Baking." Sub 15 Oct  
47, Moscow Technological Inst of Food Industry

Dissertations presented for degrees in science and engineering  
in Moscow in 1947      Cand. Tech. Sci.

SO: Sum No. 457, 18 Apr 55

VYKHOVANETS, V.V.; CHENETS, V.V.; KNUTOV, V.I.; KALECHITS, I.V.

Methods of the determination of the mark position in six-membered rings. Izv. vyz. ucheb. zav.; khim. i khim. tekhn. 8 no.3:432-434 '65. (MIRA 18:10)

1. Irkutskiy gosudarstvennyy universitet imeni Zhdanova, kafedra organicheskoy khimii.

VYKHOVANETS, V.V.; LIPOVICH, V.O.; KNUTOV, V.I.; CHENETS, V.V.; BLYUM, O.I.;  
KALECHITS, I.V.

Syntheses of methyleyclohexanes labeled with carbon-C<sup>14</sup> in  
positions 1,2,3,4, and 7. Zhur.VKHO 10 no.4:465-466 '65.  
(MIRA 18:11)

1. Institut nefte- i uglekhnicheskogo sinteza.

KNYAGININA, I.P.; LAPINA, R.A.; BLINOV, V.A.; GUDVILOVICH, I.V.

New "carbosoline" softeners. Tekst.prom.22 no.3:63-69 Nr '62.  
(MIRA 15:3)

1. Nauchno-issledovatel'skiy institut organicheskikh poluproduktov  
i krasiteley (NIOPiK).  
(Textile finishing)







12

Varietal differences of wheat with reference to the ash content in grain and flour.—*M. A. Rasmussen, Soil, Applied Botany, Genetics, Plant Breeding (U. S. N. E.) Ser. III, Vol. 8, No. 639(1930).*—A map, ash content is lowest in grains grown under conditions of sufficient moisture and strong insolation. The ash content decreased with a shift toward the more arid regions. The winter varieties of wheat contain 12-14% less ash than the soft and hard spring wheat varieties. The flour of winter wheat contains 2-4% less ash than that of soft spring wheat. The ash content of flour does not necessarily correlate with its cellulose content. In general, however, a variety with a high cellulose content has a high ash content. The index for the milling qualities may be judged from the cellulose content.

J. L. Jelle

ASG-BLA METALLURGICAL ABSTRACTS CLASSIFICATION  
19000-19100 19100-19200 19200-19300 19300-19400 19400-19500 19500-19600 19600-19700 19700-19800 19800-19900 19900-20000

112

The variability of the protein content in individual grains of a number of varieties of grain. M. I. Kopylovskiy. *Bull. Applied Botany, Genetics Plant Breeding (U. S. S. R.)* Ser. A, No. 10, 31-4 (1963) — A microchem. method of isometric detn. of N in a part of a grain without raising the germination to given. J. S. Jelle

DEVELOPMENTAL LITERATURE CLASSIFICATION

12

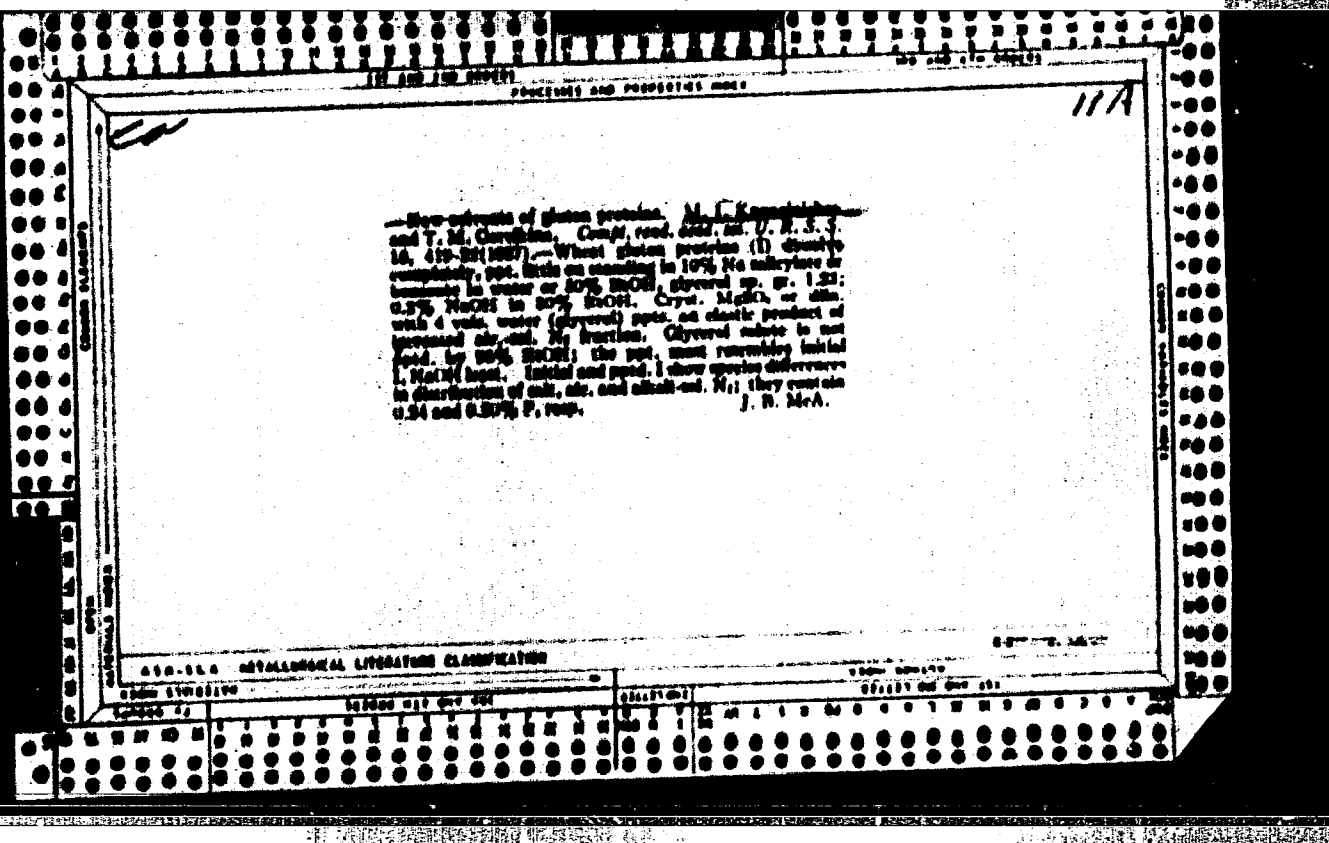
Differences in the variation of the protein content in wheat and barley grains within one ear. M. J. Kovačević. (Comm. Acad. Sci. U. R. S. S. 1958-59 (1959) Physiol. Abstracts 21, 710; cf. C. A. B. 1959). In various wheat investigated the protein content of single grains within the limits of one ear is closely connected with the wt. of the grain: the greater the wt. of the grain, the greater is its protein content, both in absolute values and in percentage. On the other hand, barley grains within the limits of one ear contain an almost equal amt. of protein, and there is an inverse relation between the N percentage and the wt. of the grain; the reason is believed to be that, in distinction to wheat, protein accumulates in the barley grain in the first stages of its development, while the weight of the grain is constituted by an afflux of carbohydrate only in the last stages. L. Pinner

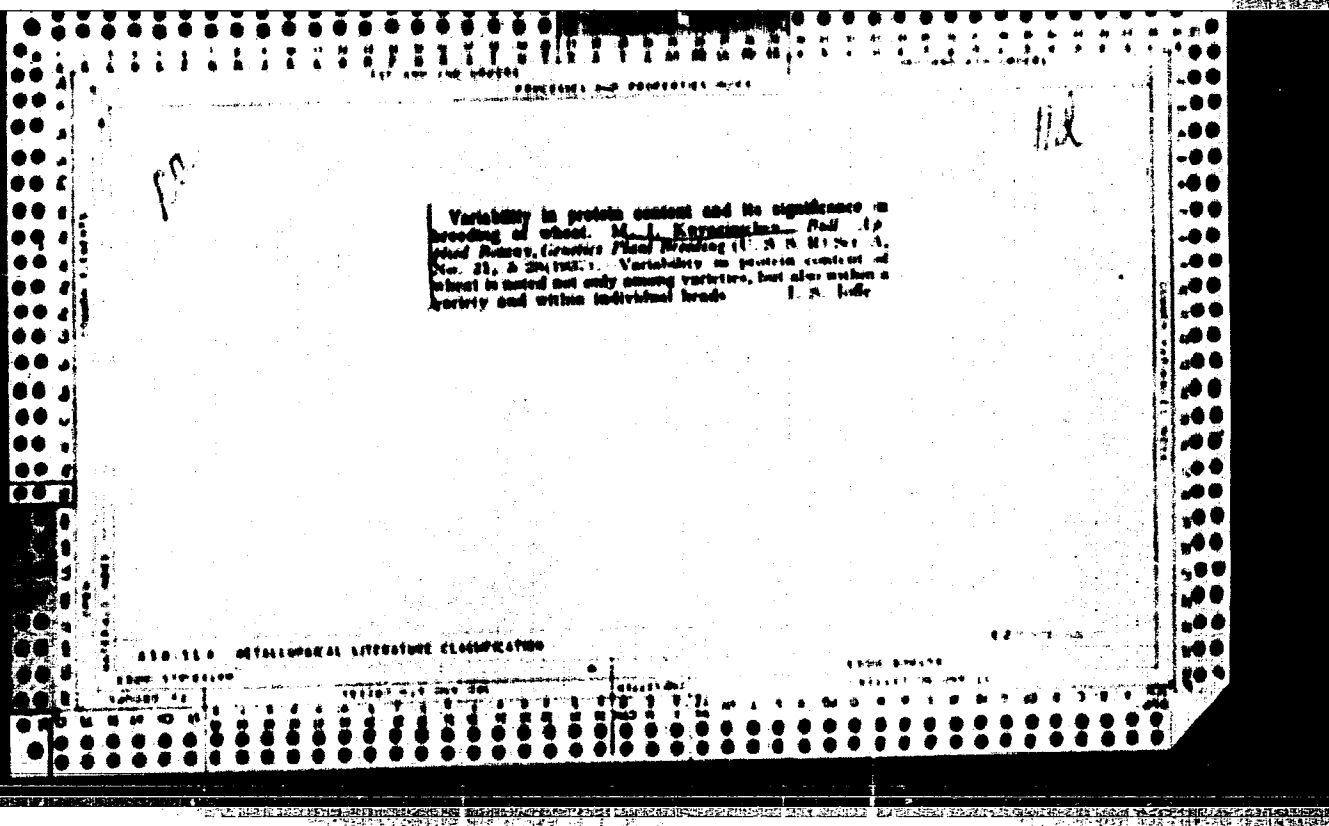
410.554 METALLURGICAL LITERATURE CLASSIFICATION



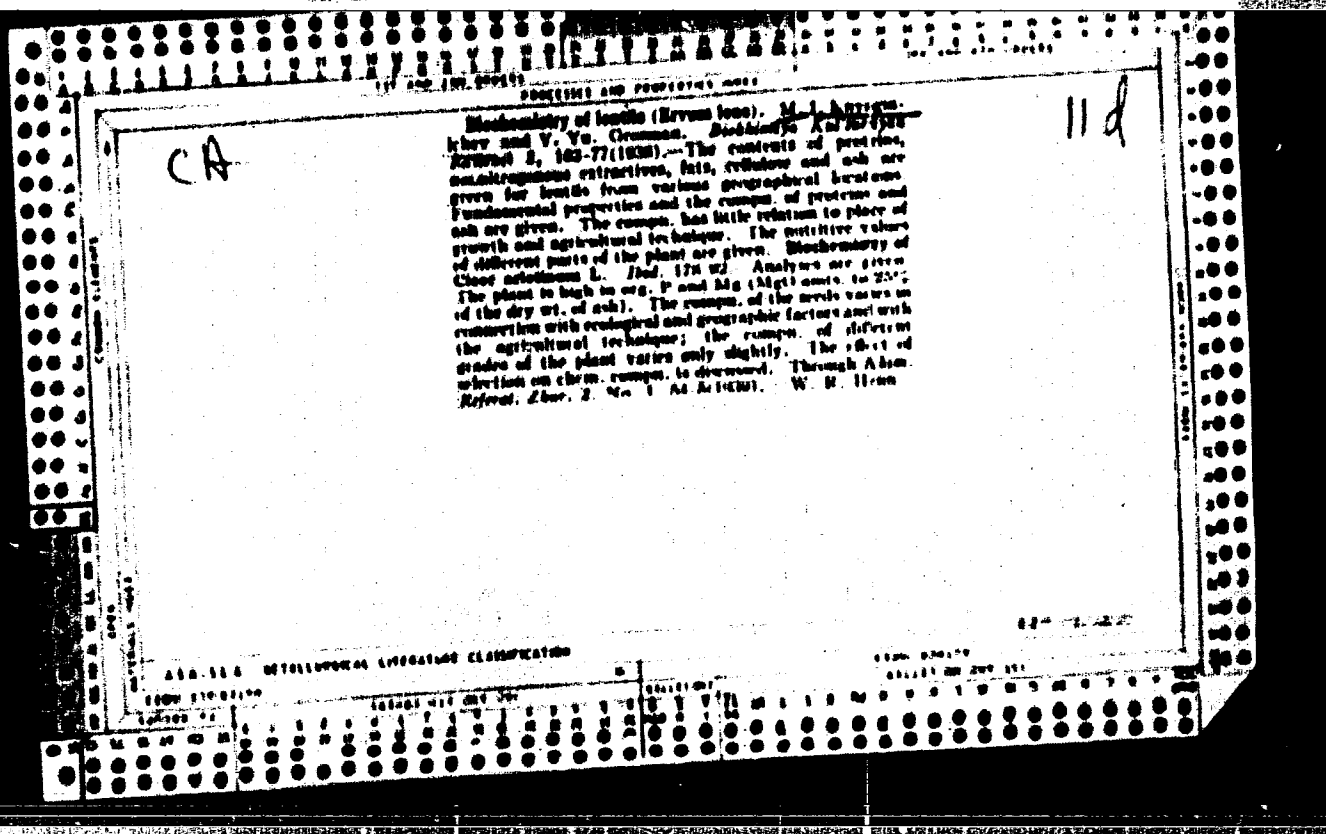


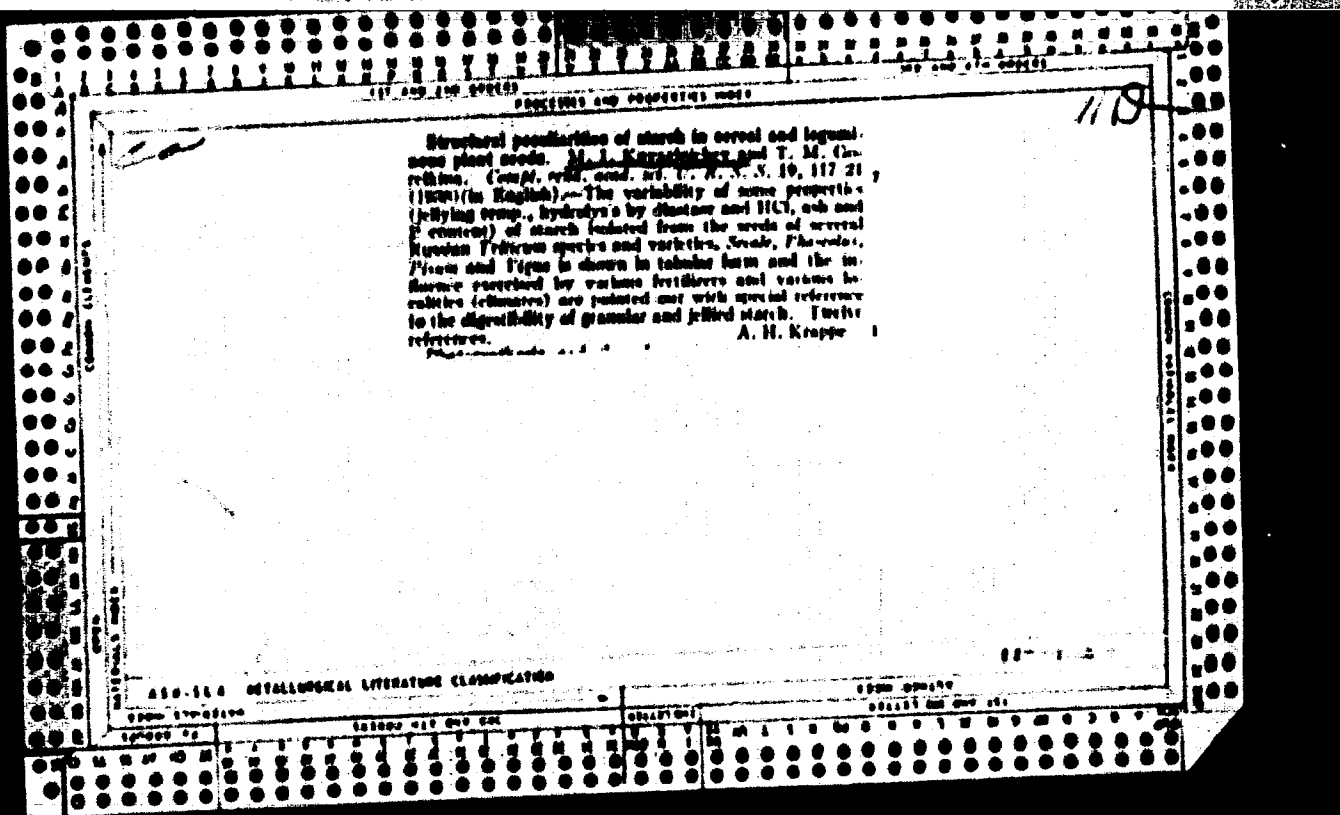












<p>17</p> <p>Protein in wheats of the U. S. S. R. M. I. Kuznetsov, <i>Trav. Acad. Sci. U. R. S. S. R.</i> 1959, 1617 (in Russian, 1959).—The protein content (I) of wheat depends on environmental and genetic factors. The av. I of soft and hard wheats in the central, southern and eastern parts of the European U. S. S. R. is practically the same (16.5%). In the North, West and Far East soft wheats are richer in I than hard wheats. Winter wheats in some regions are slightly poorer, but in most areas of the southeast and in Siberia, I is normal (17.5%). The av. I of individual varieties varies from year to year, but is remarkably constant when averaged for a period of years. Fertilization, crop rotation, etc. increase the I of poor wheats considerably. T. Lash.</p>	
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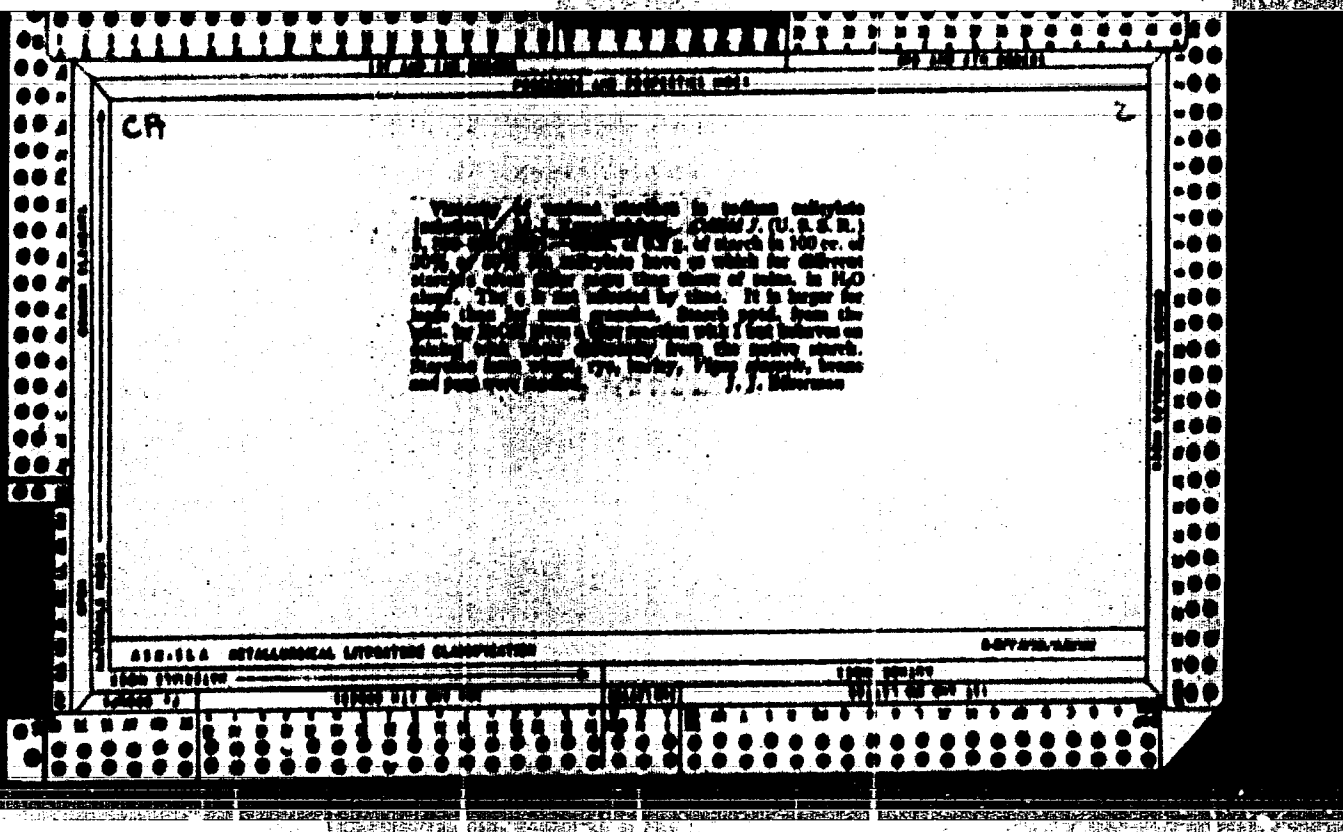
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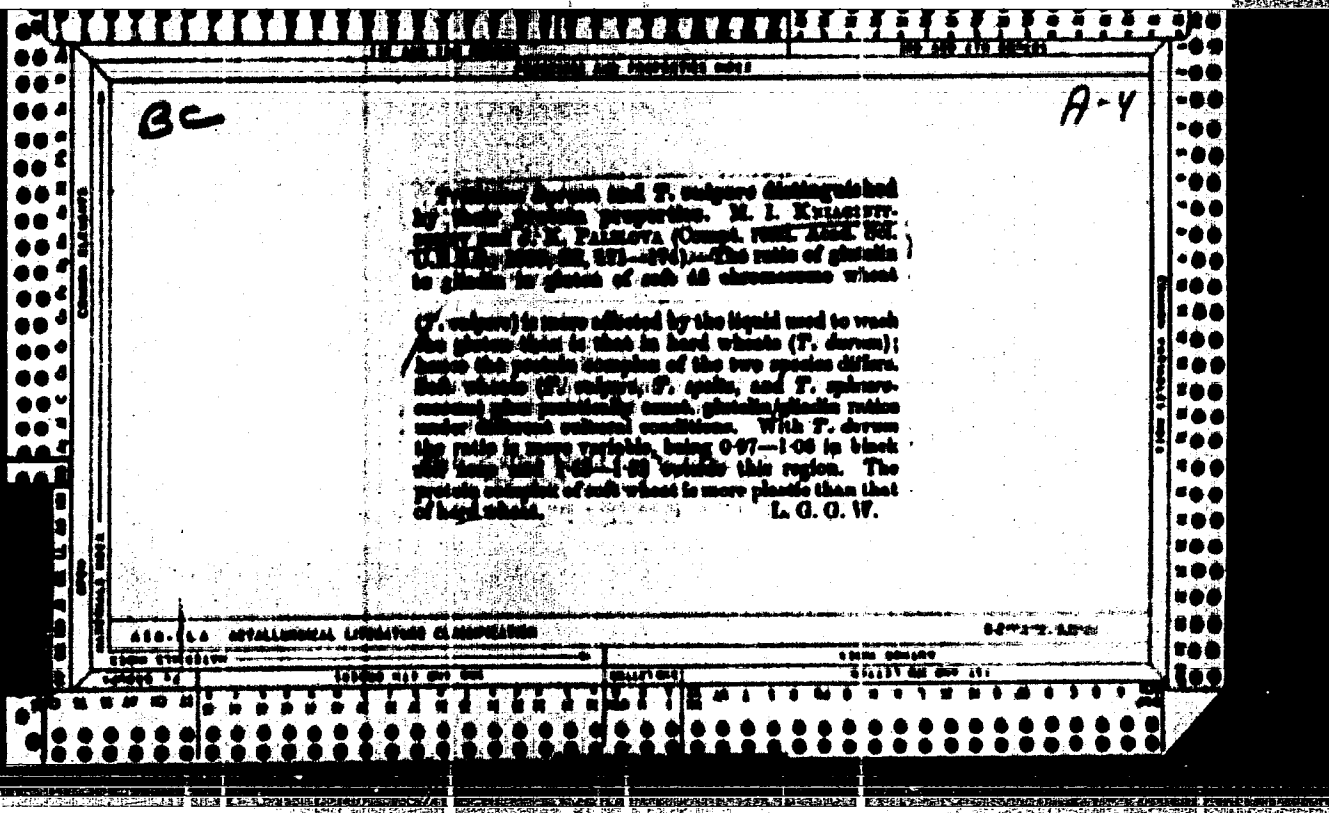
The specific rotation of wheat and legume starch. <sup>11</sup>  
 Kozlovskiy and Yu. K. Poldova. *Biokhimiya* 1, 1957, 1180. The starch from primitive varieties with early grain has a lower sp. rotation (190.8°) than the starch of cultivated varieties with naked grain (214.0°). The starch from legumes has a lower sp. rotation (192.7°) than wheat starch. The value of the sp. rotation rises parallel with the degree of evolutionary development. H. Priestley

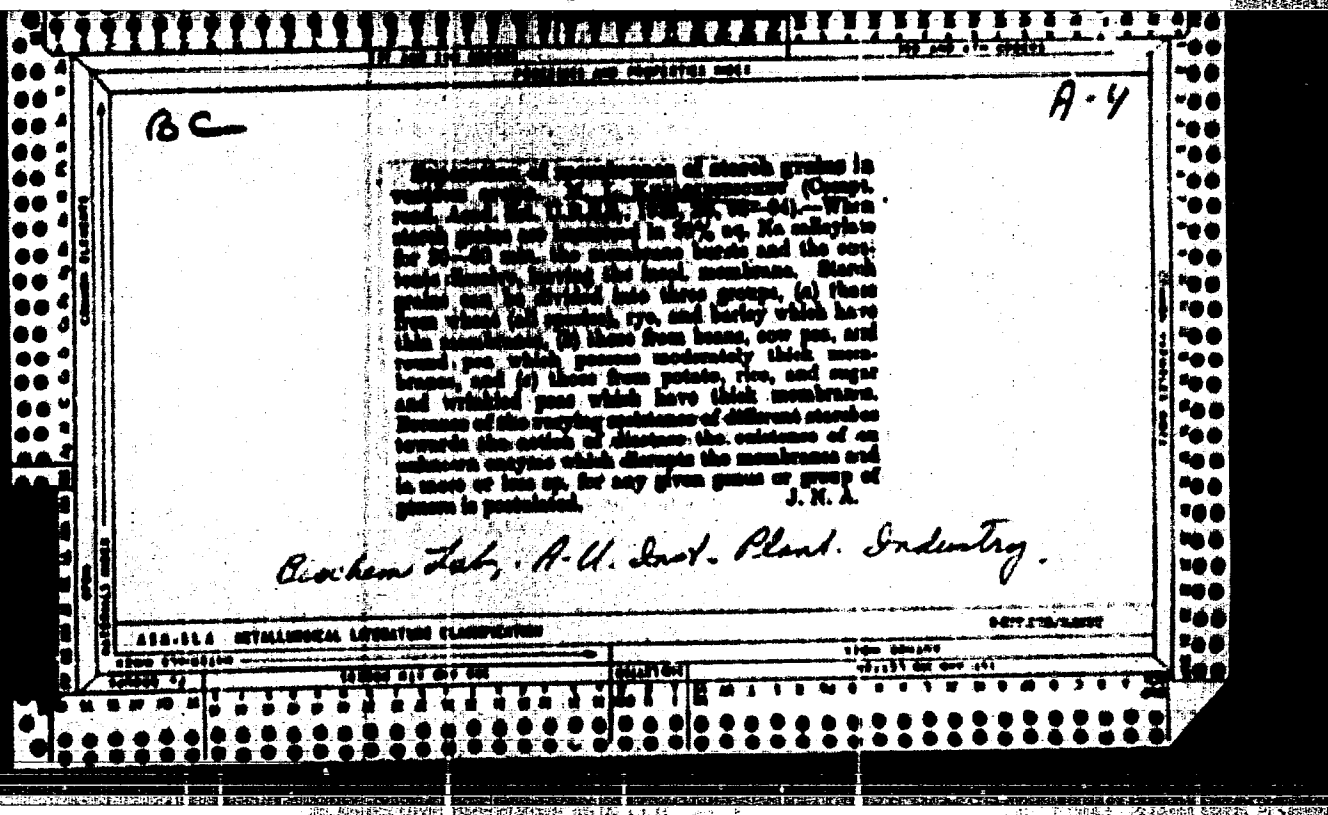
Biochem Lab, A-11 Inst. Plant Breeding.

ASD. 16.6 METEOROLOGICAL LITERATURE CLASSIFICATION

1950-1959 1960-1969 1970-1979 1980-1989 1990-1999 2000-2009 2010-2019 2020-2029 2030-2039 2040-2049 2050-2059 2060-2069 2070-2079 2080-2089 2090-2099 2100-2109 2110-2119 2120-2129 2130-2139 2140-2149 2150-2159 2160-2169 2170-2179 2180-2189 2190-2199 2200-2209 2210-2219 2220-2229 2230-2239 2240-2249 2250-2259 2260-2269 2270-2279 2280-2289 2290-2299 2300-2309 2310-2319 2320-2329 2330-2339 2340-2349 2350-2359 2360-2369 2370-2379 2380-2389 2390-2399 2400-2409 2410-2419 2420-2429 2430-2439 2440-2449 2450-2459 2460-2469 2470-2479 2480-2489 2490-2499 2500-2509 2510-2519 2520-2529 2530-2539 2540-2549 2550-2559 2560-2569 2570-2579 2580-2589 2590-2599 2600-2609 2610-2619 2620-2629 2630-2639 2640-2649 2650-2659 2660-2669 2670-2679 2680-2689 2690-2699 2700-2709 2710-2719 2720-2729 2730-2739 2740-2749 2750-2759 2760-2769 2770-2779 2780-2789 2790-2799 2800-2809 2810-2819 2820-2829 2830-2839 2840-2849 2850-2859 2860-2869 2870-2879 2880-2889 2890-2899 2900-2909 2910-2919 2920-2929 2930-2939 2940-2949 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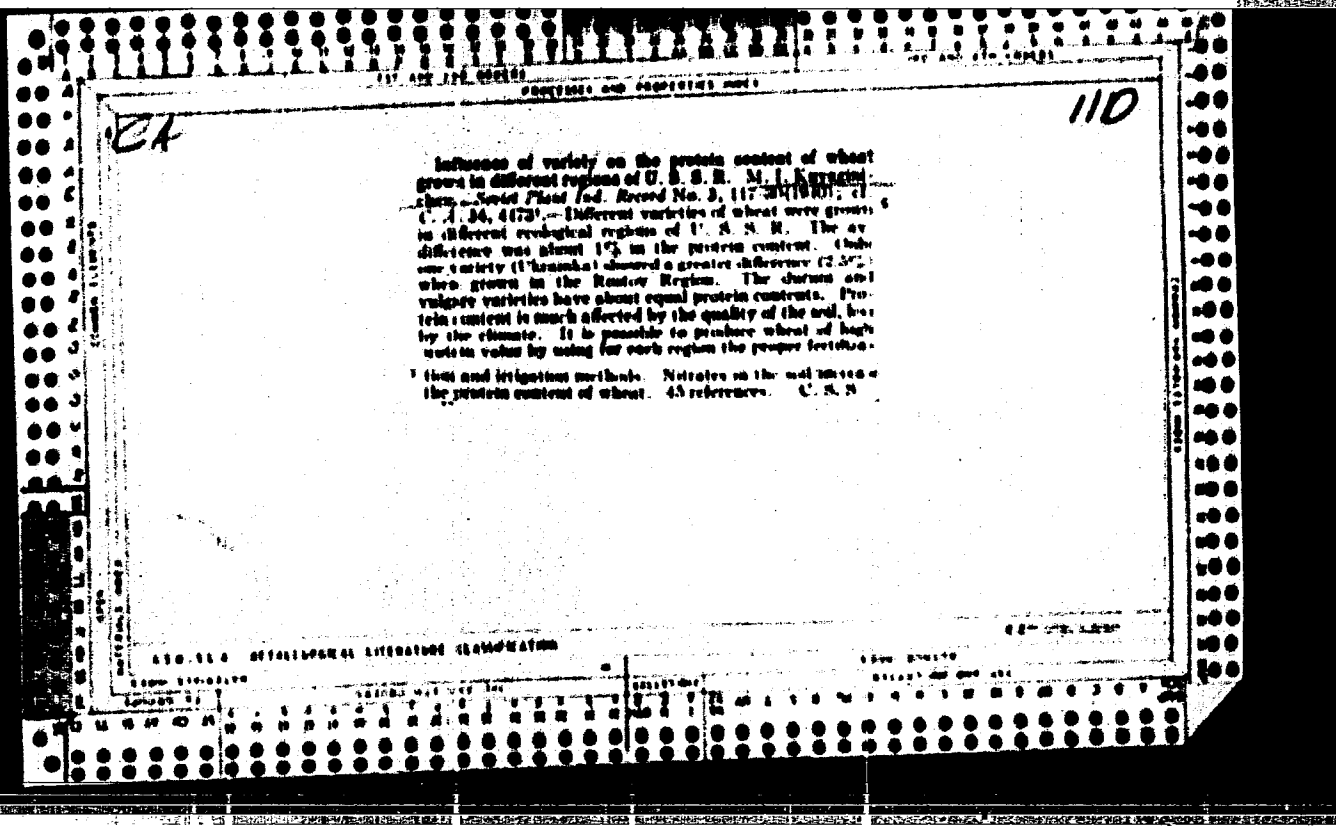


CA 11D

Biobiochemical variation and its significance in breeding  
 food crops. M. I. Karyagin, *Soviet Plant Ind.*  
*Report No. 1, 20-21 (1940).*—The  
 following are the conclusions of a search for methods of  
 hybridization, evaluation of original and hybrid material.  
 Plant plants are endowed with strong phenotypic variations  
 in char. common within groups of hermits, isolates, plants  
 and plants. The amplitude of variability depends on the  
 variety, type of plant, geographic location, and other  
 reasons. The variations between plants depend on (1) the  
 variability and subfactors within each field and (2)  
 the lack of genotype homogeneity. The protein content  
 and in some plants, the tuber number were used as char-  
 acters. J. S. Joffe

ASD-5.4 METALLURGICAL LITERATURE CLASSIFICATION





**Q7**

**100**

The synthetic and hydrolytic activities of invertase of the green parts of wheat plants. M. I. Koryshkovskiy and Ye. K. Pashova. Doklady Vsesoyuzn. Akad. Nauk SSSR. Ser. Khim. Nauki. 1948, No. 4, 26-8; Khim. Refert. Zhur. 1948, No. 2, 42; cf. C. A. 38, 2201<sup>1</sup>.—The activity of invertase was detd. by the method of vacuum infiltration and by the absorption of sugar acids by the individual parts of the plants investigated. The synthetic activity of invertase in the upper green intranodal parts and in ear buds was lower than in the leaves. The hydrolytic activity in the ear buds and in intranodal parts was higher than in the leaves.

W. R. Howe

**A.S.T.A. METALLURGICAL LITERATURE CLASSIFICATION**

**SOURCE**

**COLLECTION**

**ABSTRACT OR NOT**

110

The activity and energy of catalase in wheats, barleys and mutants related to wheat. M. I. Kozlovskaya, and Ye. K. Poltava. *Biokhimiya* 3, No. 1, No. 41 (Jan. Feb. 1968) (U.S.S.R. J. B. 228). Each developmental stage in wheats and barleys is characterized by different activity and qual. indices ( $\lambda$  and  $\mu$ ) of catalase. No substantial variations of the temp. coeff. and energy of activation are observed in the course of 1 day. The significant alterations of the activity, temp. coeff. and energy of activation of catalase in the leaves in relation to fertilizing suggest that the variability of these markers belongs to the adaptive bio. properties. Wheat and barley strains belonging to different ecological groups exhibit no significant variations of  $\lambda$  and  $\mu$ . The more recent genera related to wheat (*Lophops*, *Hemolobis*, etc.) exhibit higher values of temp. coeff. and activation energy of total catalase. Accordingly, these qual. features of catalase can be used to ascertain the phylogenetic relationship between genera. Three references.

W. R. Hume

Biochem. Lab. of the All-Union Institute of Plant Breeding, Leningrad.

ASB-366 BOTANICAL LITERATURE CLASSIFICATION

